ABSTRACT OF THE DISCLOSURE

METHOD AND MEMORY CONTROLLER FOR ADAPTIVE ROW MANAGEMENT WITHIN A MEMORY SUBSYSTEM

A method and memory controller for adaptive row management within a memory subsystem provides metrics for evaluating row access behavior and dynamically adjusting the row management policy of the memory subsystem in conformity with measured metrics to reduce the average latency of the memory subsystem. Counters provided within the memory controller track the number of consecutive row accesses and optionally the number of total accesses over a measurement interval. The number of counted consecutive row accesses can be used to control the closing of rows for subsequent accesses, reducing memory latency. The count may be validated using a second counter or storage for improved accuracy and alternatively the row close count may be set via program or logic control in conformity with a count of consecutive row hits in ratio with a total access count. The control of row closure may be performed by a mode selection between always closing a row (non-page mode) or always holding a row open (page mode) or by intelligently closing rows after a count interval (row hold count) determined from the consecutive row access measurements. The logic and counters may be incorporated within the memory controller or within the memory devices and the controller/memory devices may provide I/O ports or memory locations for reading the count values and/or setting a row management mode or row hold count.